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| APPLICATION NO.                                                                              | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.              | CONFIRMATION NO.            |
|----------------------------------------------------------------------------------------------|-------------|----------------------|----------------------------------|-----------------------------|
| 10/580,004                                                                                   | 12/20/2006  | Marc Dancau          | 291079US2X PCT                   | 7752                        |
| 22850                                                                                        | 7590        | 10/18/2007           |                                  |                             |
| OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.<br>1940 DUKE STREET<br>ALEXANDRIA, VA 22314 |             |                      | EXAMINER<br>HARTMAN JR, RONALD D |                             |
|                                                                                              |             |                      | ART UNIT<br>2121                 | PAPER NUMBER                |
|                                                                                              |             |                      | NOTIFICATION DATE<br>10/18/2007  | DELIVERY MODE<br>ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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## Office Action Summary

Application No.

10/580,004

Applicant(s)

DANEAU ET AL.

Examiner

Ronald D. Hartman Jr.

Art Unit

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 5/19/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

#### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, "the exhaust gases" and "the engine operation" lack proper antecedent basis.

Claim 1, lines 4-5 are confusing as it is not readily apparent what is being referenced; "further comprising" with respect to what? The overall system or the ECU? Since this is unclear, for examination purposes, the examiner will treat this feature as referencing the overall system.

Claim 4, "the engine speed", "the fuel flow rate", "the engine coolant temperature" and "the vehicle speed" all lack proper antecedent basis. Also, "the data used at the input of the neural network or networks" lacks proper antecedent basis.

Claim 5, "the engine speed", "the fuel flow rate", "the engine coolant temperature", "the fuel-air ratio" and "the mixture" all lack proper antecedent basis. Also, "the data used at the input of the neural network or networks" lacks proper antecedent basis.

Claims 4 and 5, "the soot", in line 10, respectively, lacks proper antecedent basis.

Claim 6, "the data used at the input of the neural network or networks at time t", "the fuel preinjection rate", "the main fuel injection rate", "the relative displacement of a piston" (2 instances), "the time when the last" (2 instances), "the last fuel injection", "the last main fuel injection", "the engine coolant temperature", "the engine air feed rate", "the pressure inside", "the engine speed", "the cumulative quantity" (4 instances), "the soot" and "the carbon oxides" all lack proper antecedent basis. Also, "the data used at the input of the neural network or networks" lacks proper antecedent basis.

Claim 9, "the output quantities" lacks proper antecedent basis.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4-6 and 13/6 are rejected under 35 U.S.C. 102(e) as being anticipated by Gui et al., U.S. Patent Application Publication No. 2004/0031262.

Claims 1 and 3/1 are rejected under 35 U.S.C. 102(a) as being anticipated by "An Integrated Approach for the Design of Diesel Engine Exhaust Systems to meet Euro 4 and beyond Emissions Legislations"(hereinafter: Wassermayer et al.)

**Examiner Analysis of Claim 1:**

As best understood, it appears claim 1 discloses a system whose intended use is for estimating quantities of pollutant compounds emitted in exhaust gases of diesel engines of motor vehicles. As per the MPEP, "*A preamble is generally not accorded any patentable weight* where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951)." (Emphasis added). With regards to claim 1, the body of the claim refers to "the *engine* operation", and this reference is

believed to render the preamble necessary, and therefore afford it patentable weight, since the preamble recites that the engine is specifically a diesel engine of a motor vehicle. Further, the body of claim also recites, "cumulating *the estimate quantities*", and this reference is also believed to render the preamble necessary, and therefore afford it patentable weight, since the preamble recites that the estimate quantities are "pollutant compounds emitted in the exhaust gases" of the previously referenced "diesel engine of a motor vehicle".

That being said, the claim (claim 1) further recites that the overall system, described above with reference to the Preamble, is comprised of:

- a means for regenerating a solid particulate filter;
- an ECU, for managing engine operation, the ECU comprising data memories, wherein the system further comprises:
  - a neural network;
  - input data, representative of engine operation, the data being available in the ECU for managing engine operation without adding a sensor; and
  - a means for cumulating the estimated quantities.

As best understood, this system appears to be adequately anticipated by Gui et al., U.S. Patent Application Publication No. 2004/0031262 (e.g. See Figures 1 and 4, and their corresponding textual descriptions, as well as [0036], [0041] and [0043] – [0054]).

Further, the claim appears to be adequately disclosed by "An Integrated Approach for the Design of Diesel Engine Exhaust Systems to meet Euro 4 and beyond Emissions Legislations"(hereinafter: Wassermayer et al.) (e.g. See Figures 1 and 3).

Claim 3/1 is rejected by Wassermayer et al. (e.g. See Figure 3, element "database").

Claims 4 and 5 are adequately disclosed, or rendered inherent, by the teachings of Gui et al. (e.g. "engine speed"; [0018] and "soot"; [0004]).

As per MPEP 2111.04, "Claim scope is not limited by claim language that suggests or makes optional but does not require steps to be performed, or by claim language that does not limit a claim to a particular structure." With regards to claim 6, this passage is believed to apply to "*adapted to an engine with common rail injection*" (Emphasis added) since only one of the listed parameters is associated with this common rail. Therefore, if this limitation is not interpreted as being part of the claim, due to the Markush grouping language, the scope of the claim is not believed to be limited by a feature of the preamble that states that the intended use of the engine is for a engine with common rail injection, wherein the body of the claim does not provide any details regarding the common rail.

That being said, claims 6 and 13/6 appear to be adequately anticipated by Gui et al. (e.g. see "engine speed", [0018]; "soot", [0004]; and "NOX", [0018] and [0046]).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gui. et al., or in the alternative, over Wassermayer et al., as applied to claim 1 above, in view of Official Notice.

As per claim 8, Official Notice is taken with respect to a feature, with respect to either Gui et al. or Wassermayer et al. wherein quantities of measured particulates are reset, independently of one another and its incorporation would have been obvious for

the purpose of regeneration since after regeneration, if successful, the amount of particulates should be diminished greatly and therefore it would be obvious that the amount should be reset to a lower number, whatever number that may be, and this would have been obvious to one of ordinary skill in the art at the time the invention was made.

As per claim 14, it is believed that utilizing a drive cycle is taught by both Gui et al. and Wassermayer et al.

#### ***Allowable Subject Matter***

Claims 2, 3/2, 7, 13/7 and 9-12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

As per claims 2 and 3/2, specifically claim 2, the prior art of record fails to teach the Neural Network being comprised of 10 to 15 neurons, in combination with the other claimed features and or limitations as claimed.

As per claims 7 and 13/7, specifically claim 7, the prior art of record fails to teach a system that does not utilize feedback loops, whatsoever, in combination with the other claimed features and or limitations as claimed.

As per claims 9-12, specifically dependent claim 9, the prior art of record fails to teach a "sliding window", in combination with the other claimed features and or limitations as claimed.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronald D. Hartman Jr. whose telephone number is (571) 272-3684. The examiner can normally be reached on Mon.-Fri., 11:00 - 8:30 pm, EST.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on (571) 272-3687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ronald D Hartman Jr.  
Primary Examiner  
Art Unit 2121

*R D Hartman Jr*

October 12, 2007

RDH

*XRDH*